

Listing of Claims

The below listing of claims will replace all prior versions of claims in the application.

1. (Currently Amended) An image sensor, comprising:
a two-dimensional array of pixel elements, said array of pixel elements outputting pixel data representing an image of a scene; and
a two-dimensional array of selectively transmissive filters superimposed on said two-dimensional array of pixel elements, whereby each pixel element in said array of pixel elements is disposed to capture a first and a second color spectra of visible light,
wherein said two-dimensional array of transmissive filters comprises a two-dimensional array of filter cells, each filter cell superimposed and in registration with each of said pixel elements, each of said filter cells comprising a transmissive filter of a first type and a transmissive filter of a second type formed as four quadrants in an active area of said filter cell.
2. (Original) The image sensor of claim 1, wherein said two-dimensional array of pixel elements comprises a two-dimensional sensor array of digital pixels, each of said digital pixels outputting digital signals as pixel data.
3. (Original) The image sensor of claim 2, wherein each of said digital pixels comprises a photodetector generating an output signal; and said image sensor further comprises:
a plurality of analog-to-digital conversion (ADC) circuits located within said array of pixel elements, each of said ADC circuits being connected to one or more photodetectors for converting said output signal to a digitized pixel voltage signal.
4. (Original) The image sensor of claim 1, wherein each of said pixel elements of said image sensor generates analog signals representative of said image as pixel data, and said image sensor further comprises an analog-to-digital converter for digitizing said analog signals.
5. (Cancelled)

6. (Cancelled)

7. (Cancelled)

8. (Currently Amended) The image sensor of ~~claim 7~~ claim 1, wherein, in each filter cell, said transmissive filter of said first type occupies a first quadrant and a second quadrant diagonal from said first quadrant.

9. (Currently Amended) ~~The image sensor of claim 1,~~ An image sensor, comprising:

a two-dimensional array of pixel elements, said array of pixel elements outputting pixel data representing an image of a scene; and

a two-dimensional array of selectively transmissive filters superimposed on said two-dimensional array of pixel elements, whereby each pixel element in said array of pixel elements is disposed to capture a first and a second color spectra of visible light,

wherein said array of transmissive filters is in registration with each of said pixel elements and each filter in said array of selectively transmissive filters comprises a composite filter for transmitting ~~is disposed to transmit~~ visible light of said first color spectrum and ~~visible light of~~ said second color spectrum.

10. (Currently Amended) The image sensor of claim 9 wherein each composite filter in said array of transmissive filters has a spectral response representative indicative of ~~a spectral response of said transmissive filter of said first type~~ a combination of a spectral response of said first color spectrum and a spectral response of said second color spectrum ~~and a spectral response of said transmissive filter of said second type.~~

11. (Currently Amended) The image sensor of ~~claim 1~~ claim 9, wherein said array of transmissive filter comprises a CMYG (cyan, magenta, yellow, green) filter pattern and in a first set of ~~pixel element~~ composite filters, said first color spectrum comprises a cyan color and said second color spectrum comprises a green color.

12. (Currently Amended) The image sensor of claim 11, wherein in a second set of ~~pixel elements~~ composite filters, said first color spectrum comprises a cyan color and said second color spectrum comprises a magenta color.

13. (Currently Amended) The image sensor of claim 11, wherein in a second set of ~~pixel elements~~ composite filters, said first color spectrum comprises a yellow color and said second color spectrum comprises a magenta color.

14. (Currently Amended) The image sensor of claim 11, wherein in a second set of ~~pixel elements~~ composite filters, said first color spectrum comprises a yellow color and said second color spectrum comprises a green color.

15. (Currently Amended) An image sensor, comprising:

a sensor array comprising a two-dimensional array of pixel elements, said sensor array outputting digital signals as pixel data representing an image of a scene; and

a two-dimensional array of selectively transmissive filters superimposed on said pixel elements of said sensor array, whereby each pixel element is disposed to capture a first and a second color spectra of visible light,

wherein said two-dimensional array of transmissive filters comprises a two-dimensional array of filter cells, each filter cell superimposed and in registration with each of said pixel elements, each of said filter cells comprising a transmissive filter of a first type and a transmissive filter of a second type formed as four quadrants in an active area of said filter cell.

16. (Original) The image sensor of claim 15, wherein each of said pixel elements comprises a photodetector generating an output signal; and said image sensor further comprises:

a plurality of analog-to-digital conversion (ADC) circuits located within said sensor array, each of said ADC circuits being connected to one or more photodetectors for converting said output signal to a digitized pixel voltage signal.

17. (Cancelled)

18. (Cancelled)

19. (Cancelled)

20. (Currently Amended) The image sensor of ~~claim 19~~ claim 15, wherein, in each filter cell, said transmissive filter of said first type occupies a first quadrant and a second quadrant diagonal from said first quadrant.

21. (Currently Amended) ~~The image sensor of claim 15,~~ An image sensor, comprising:

a sensor array comprising a two-dimensional array of pixel elements, said sensor array outputting digital signals as pixel data representing an image of a scene; and

a two-dimensional array of selectively transmissive filters superimposed on said pixel elements of said sensor array, whereby each pixel element is disposed to capture a first and a second color spectra of visible light,

wherein said array of transmissive filters is in registration with each of said pixel elements and each filter in said array of selectively transmissive filters comprises a composite filter for transmitting ~~is disposed to transmit~~ visible light of said first color spectrum and ~~visible light of~~ said second color spectrum.

22. (Currently Amended) A method for generating electrical signals representing an image in an image sensor comprising an array of pixel elements overlaid with an array of selectively transmissive color filters, comprising:

generating at each pixel element pixel data indicative of the light intensity impinging on said pixel element, said pixel data being a sum of the light intensity of a first color spectrum and a second color spectrum of visible light,

wherein said array of selectively transmissive filter comprises a CMYG (cyan, magenta, yellow, green) filter pattern and said first color spectrum comprises a cyan color or a yellow color and said second color spectrum comprises a green color or a magenta color.

23. (Original) The method of claim 22, wherein said pixel element generates digital signals as pixel data.

24. (Original) The method of claim 22, wherein said pixel element generates analog signals as pixel data.

25. (Cancelled)

26-31: Cancelled.

32. (New) The image sensor of claim 1, wherein said array of selectively transmissive filter comprises a CMYG (cyan, magenta, yellow, green) filter pattern, each filter cell having the transmissive filter of the first type and the transmissive filter of the second type selected from the CMYG filter pattern.

33. (New) The image sensor of claim 9, wherein said two-dimensional array of pixel elements comprises a two-dimensional sensor array of digital pixels, each of said digital pixels outputting digital signals as pixel data.

34. (New) The image sensor of claim 21, wherein each of said pixel elements comprises a photodetector generating an output signal; and said image sensor further comprises:

a plurality of analog-to-digital conversion (ADC) circuits located within said sensor array, each of said ADC circuits being connected to one or more photodetectors for converting said output signal to a digitized pixel voltage signal.